NEWSLETTER Dec/Jan 91/92
Issue No. 4

3D CONSTRUCTION KIT USERS GROUP

EDITORIAL

Welcome to Issue 4 of the 3D Construction Kit User Group Newsletter.

At last games, routines etc., are starting to arrive for the Public Domain library in sufficient quantity to start the ball rolling. As soon as Christmas is over I will test them all, sort them all out and a list should be ready for the next issue of the Newsletter. Any routines, hints or tips, letters etc are also most welcome for the next issue of the Newsletter. As I said previously, if all the contents of the Newsletters were written by myself alone we wouldn't have the variety of ideas that a large group of members can provide, so I hope I will hear from many more of you in time for the next newsletter, which will be sent out in February.

I have just heard that the programmers are currently working on a version of the 3D Construction Kit for the Archimedes computer so, no doubt we will soon have more members joining the User Group with, hopefully, even more information and ideas to exchange. I'll give more details as I soon as I hear more. One of the benefits of being a member of the User Group is hearing of up to the minute news on new developments, versions and products from the programmers through the Newsletters.

I hope that the Christmas post won't delay this issue of the Newsletter getting to you all too much. Things get rather hectic here, as everywhere else, during the run-up to the festive season but I am hoping to get everything well organised and all my work completed before the school holidays start. As many of you will know, all too well, once the children are at home they expect Christmas to start immediately and it is difficult to get other things done! Isn't it amazing how they all join in when it is time to put up the Christmas decorations and how they mysteriously vanish when it is time to take them all down again?! Still, it is a lovely time of year and, despite my grumblings to the contrary, I wouldn't miss being a part of it all for anything.

One thing about Christmas time, which I thoroughly enjoy, is being able to send warm greetings all around the World. Indeed you may be surprised to learn just where our Newsletter goes to. We have members in Germany, Holland, Portugal, Italy, Pacific Ocean, France, Spain, Norway, Denmark, United States, Canada, Japan, Indonesia, Belgium, Switzerland, Sweden, Finland, Australia, New Zealand, Tasmania, Cyprus, Greece, Austria, Luxembourg and Singapore as well as all over the United Kingdom. Obviously I cannot possibly send Christmas greetings in all the languages but I will do my best to include as many as I can. So here goes: Felices Fiestas, Frohiliche Weihnachten, Joyeau Noel, Bon Nadal, Gledelig Jul, Boas Festas, Feliz Natal, Buon Natale, God Jul, Glaedelig Jul, Gellukkie Kerstfeest, Nadolig Llawen, A Ver y Merry Christmas and a very Happy New Year to each and every one of you. Perhaps overseas readers would be kind enough to let me know the Christmas greetings in the languages I have missed so that I can become even more international in time for next year.

I sincerely hope that you find this issue of the Newsletter helpful and interesting and I will see you all again in February. Meanwhile, I hope to hear from you so do write in. Before I close I must thank those of you who sent me so many lovely Christmas cards - I've never had so many, thank you very much much indeed. Well, byeee for now,

Mandy

TRANSLATING ROUTINES

Quite a few members have asked me for help in translating between 8 bit and 16 bit routines. There is very little difference between the two Freescape Command Languages although, because conditions are entered rather differently they do appear to be. To give you some idea of what I mean. Here are some identical routines written for both 8 and 16 bit machines. These conditions can be found in the chapter entitled EXAMPLES which can be found in ALL the manuals. I use these simple routines so that you can compare them easily by referring to this chapter.

TO GO TO ANOTHER AREA

(16 BIT)

```
IF ACTICATED?
THEN INVIS (3)
VIS (4)
ENDIF


IF COLLIDED?
THEN GOTO (1,2)
ENDIF
```

(8 BIT)

```
IFACTIVE    3
THEN
INVIS       3
VIS         4
ENDIF

IFHIT       4
THEN
GOTO        1   2
ENDIF
```

TO MAKE AN OBJECT INVISIBLE OR VISIBLE

```
IF SHOT?                IFSHOT      3
THEN INVIS (o)          THEN
ENDIF                   INVIS       3
                        ENDIF
```

As you can see the main difference is that with the 8 bit language you are limited to a command per line of input, whereas with 16 bit you are not. Most of the FCL commands are exactly the same for both machines but it may help members, who wish to use ALL the routines (apart from animation which is 16 bit specific) within the Newsletters, to do so if some of the differences are explained here.

(16 BIT)		(8 BIT)
ACTIVATED?	----------	IFACTIVE
ADDVAR	----------	ADDV
COLLIDED?	----------	IFHIT
VAR=?	----------	CMPV (compare variable)
		IFEQ (if equal)
VAR>?	----------	CMPV
		IFGT (if greater than)
VAR<?	----------	CMPV
		IFLT (if less than)
SHOT?	----------	IFSHOT
TIMER?	----------	IFTIMER
VIS?	----------	IFVIS
SUBVAR	----------	SUBV
SETVAR	----------	SETV

IFSENSED is 8 bit specific and 16 bit users will have to use System Variable 11 to check if the player has been shot by a sensor. I hope this will be of some help to you all. If I have missed any command that you would like translated then please let me know.

LETTERS

Dear Mandy

I was wondering whether there were many Commodore 64 members of the User Group as, judging from the previous Newsletters, there doesn't seem to be many at all. Anyway, the main point of my letter: Could you please tell me what the variables 122 and 123 are for? They are labeled Interrupt Counters. If you can't answer this then don't worry as I will probably manage to work it out for myself with time. One last thing, I know now to alter the kit so that it is capable of playing music. I have not done it yet but I know how to do it, I know it is illegal to tamper with the innards of a program, so I expect I will have to obtain permission to change it so that it will play music. I can't promise success but it would be a great advantage for C64 users. I must say that you do a great job running the User Group, well done! I wish you luck for the future.

Steven Flanagan, Sheffield
COMMODORE 64

Thank you for your good wishes, Steven. There are a great many Commodore 64 members but I haven't heard from many of them yet. As time goes on I hope that more of them will make themselves known through the Newsletters. Same goes for all computer users, we would love to hear from you all so do write in with your news and views. The variables 122 and 123 are Interrupt counters and the value of these increases every 50th of a second. These can be used to time events and are most useful as they can be reset. You can modify your own copy of the 3D kit to be able to play music without any problem, if you so wish. What you cannot do, as it is illegal, is to modify a program for any other but your own personal use.....Mandy

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Dear Mandy,

I just thought, while I'm sending my registration and application to join, I might as well include my first letter to your Newsletter. I was wondering if anyone has sussed how to create solid 3D wheels like the ones on the tutorial video. Is it possible? How do you do it? or is this something you can only do on the 16-bit machines? Also how do you go about creating new items for the Global Area, as my program seems to have everything invisible or something in the Global Area. Are there likely to be further developments, and so further editions or add-ons for 3DCK, such as a design-your-own sound effects option, as while the sound effects are useful they are a might limited. For example, what would you use for a car engine for the car design the video shows off so well? Anyway, I'm not moaning; my 3D Construction Kit is now about the most used item in my software collection. Oh and before I forget, I know it is illegal to sell unauthorised copies of the kit, but is it OK to merely back it up? I ask this because of the disclaimer in the manual, so if anything went wrong with my copy I would have to shell out another £24.99, which I can't well afford.

Matt Moran. Solihull
AMSTRAD CPC

The wheels are created using small, inverted pyramids which, when fitted together, form what looks like a circle. I have to admit that, when starting to fiddle about with the Global area's - on all machines - that problems tend to occur. I have found that area to be extremely sensitive and personally prefer to create my own objects in whatever area I am in than to try to add any to the Globals. If you add an object to the global area it will, when selected, always appear at the same position which could create an overlap of objects if one is not extremely careful. News of any upgrades, new programs or add-ons will be announced in the Newsletters as soon as the programmers give me the "thumbs up" so you won't miss out on anything, Matt. If anything untoward happens to your original program disc you will be provided with a replacement so no need to worry on that score. I hope you continue to get the same pleasure and enjoyment out of using the program as you obviously have so far.....Mandy

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Dear Mandy,

Would it be possible to incorporate CyberScape .3D2 files/objects into the 3D Construction Kit? I would like to do so if at all possible and if you could give me some information on the 3DCK data format, perhaps I will be able to work out how to do it.

Andy Caldwell Liverpool
ATARI ST

Unfortunately the data format used within the 3DCK is not really capable of the level of complexity many objects created with CyberScape exhibit. The only way it would be possible to display CyberScape objects with the 3DCK would be to create TRIANGLE object type for each facet within the CyberScape object. As I'm sure you will appreciate this would be very memory intensive and also, more importantly, processor intensive thus slowing the frame rate to an unusable level. However, there is a possibility of a new release of the 3DCK in the near future aimed at the more technical user. This new version (subtitled "Professional") will allow, amongst other things, for the inclusion of user code modules. This feature will allow programmers, such as yourself, to write their own programs to do anything from a simple instrument type, to a complete subgame, and have these programs called from within the 3DCK. Another possible feature of the "Professional" version (perhaps of more interest to you) is the inclusion of new and more flexible OBJECT types. This feature may help in converting the more complex CyberScape data to 3DCK format. As a member of the User Club you will be informed as more information of any new versions become available.....Mandy

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Dear Mandy,

I would be grateful if you could clarify a point about the C64 manual. The IFSENSED command, on page 35, will not work on my machine. Whenever it is typed in on its own line the border flashes to show an error. I presume some other parameter must follow it. However, the manual doesn't give any indication of what it should be.

Robert Pomfret Manchester.
COMMODORE 64

Yes, the IFSENSED command should be followed by the number of the sensor you are referring to. If you create a sensor it will be given its own number in the object list. So if your sensor was given the number 7 you would enter the command:

```
IFSENSED 007
```

I think you will find the article entitled 8 Bit Routines by George Dixon, in this issue, of special interest to you as it goes into great detail on the subject of sensors.....Mandy

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Dear Mandy,

Ciao Gran Supremo Mega Direttore Galattico Mandy. Mi chiamo Giorgio e ti sto' skrivendo da Genova. I seemed to understand, in the last issue, that you know something about Latin languages. but I had better translate. Ciao (this is international) Supreme Great Chief Galactic Mega Director Mandy. I am Giorgio and I am writing to you from Genoa (beloved Italy). I must say that I read my first issue (Aug/Sept) of the Newsletter with great interest. In particular. I had to agree with readers who have had some problems in loading and saving using the 3DCK on the PC with the mouse. It might be an idea to build an album with photographs of all of us in the 3DCK User Group, this album might be published at the end of each year in the relevant issue of the Newsletter. It might be a long job for you but please do think about it. I like the spirit of the publication, concise but full of interesting advice and useful routines. What do you think about the idea of building a Mega-Game in which every member of the User Group could participate by sending you his or her contribution as a ready made area? Each area might contain a visible recognition number and the purpose might be to discover the name of its author (something only you would know). You could prepare the main area from which everyone could enter in each of the others and the first people to discover completely the number/name table might see his or her name published in the Newsletter with the solution! E colgo l'occasione per porgerti i miei piu' grandi complimenti per la rivista e per farti gli auguri (porta meglio pero' un "in bocca al lupo") per una sempre migliore continuazione... But this time I don't translate.

Giorgio Oliveri Genoa, Italy
PC

Thank you for your good wishes, Giorgio. Yes, I do manage to be able to translate Latin languages. It is French and German that I have the greatest difficulty with. Being married to a Portuguese, and speaking that language, helps a lot (hence my surname, I add that as some of you have been wondering about it!). I appreciate your ideas and suggestions but, herein lies the difficulty, there are hundreds of members of the User Group and all the different computers are represented so producing the photographs would be extremely difficult - as well as the fact that photocopies of photographs rarely produce flattering results! The Mega-game would be difficult to organise unless there was one for each different computer and I just wouldn't have the time to organise it. Perhaps you would care to start the ball rolling with a PC Mega-game though? Perhaps other members have some useful suggestions on how this could be done? Ciao.....Mandy

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Dear Mandy,

I've just bought the 3DCK for the Atari 520ST and find it completely fantastic!! Please find enclosed my registration and membership. I'm currently involved in a major game project and have a number of questions on obtaining features that I've seen in Incentive games. How would it be possible to create a day/night situation so that the background sky colour would change when it becomes night and subsequently when day arrives? This would ideally be taken from a reading of a time bar so that when the player enters an area it would either be day or night, depending on the TIME reading. Is it possible to update graphics in the borders as done in the water jar from TOTAL ECLIPSE? Finally, it is possible to load in data from within a game, as I am finding that my game may not all fit into one load? I would be grateful if you could shed some light on these questions.

Liam Johnston Belfast

ATARI ST

I'm afraid it isn't possible to update borders or load in data from within a game, at least on this version. See the reply to the letter from Andy Caldwell about future versions as I think these may be possible with the "Professional" version. The DAY/NIGHT problem is possible but rather difficult to program. In DRILLER the programmers had a command to change the colours which isn't available in the present 3DCK. What may overcome this would be to create two identical areas, one with black "sky" and the other with "blue" sky and to move the player from one to the other depending on the "time of day" (determined by the time). Of course one problem would then be to determine exactly where, in the current area, the player was and to place them in EXACTLY the same spot in the other area. This could be done by storing the player's coordinates within variables. I confess that I haven't yet had time to try this myself, but when I do I will let you know how it should be done. Perhaps another member has, or will, work it out. If so, I would appreciate the routines for the Newsletters very much indeed.....Mandy

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Dear Mandy,

Thank you for your letter and the Oct/Nov issue of the 3D Construction Kit Users Group Newsletter (what a mouthful!). I was in two minds about subscribing as most of the correspondence seems to be for Amiga's and CPC's whereas I have a humble old Tandy IBM compatible. Would it be possible to give translations for the routines in the various formats as most of them are quite short? In issue 3 there was a quite complicated routine by George Dixon for the player to hop on an object and be moved to another point. The comment was "16 bit users will also find them useful as only a little adaptation is needed to convert the commands/routines to the 16 bit machines." How? Perhaps I am still wet behind the ears and could do with issue 2 with your article on Variables. One routine I have been trying to work out is to be able to move an object with the viewpoint. Eg. to have an object representing the bonnet of a car at the bottom of the screen, which when a button is activated would move forward as the player moves forward. This would enable the player to simulate getting in or out of the car. I know you would normally have the border depicting, perhaps the dash panel of the vehicle but you can't change the border in the middle of a program. One other thing I am not sure of is the point on page 8 about Free distribution of stand alone data files. Does this mean they can be freely distributed in whatever way deemed suitable at whatever charge thought reasonable. Or does it mean free and gratis "Here mate have a copy, doesn't cost you a penny" type free?

Stephen Shield, St Helier, Jersey

PC

Firstly, Stephen, let me explain that the Freescape Command Language is exactly the same for ALL 16 bit machines so routines for Atari ST or Amiga can be entered in the PC without any modification or translation. Similarly the 8 bit FCL is the same for all 8 bit machines. This issue I have included a short article which I hope will enable all members to convert ALL the routines within the Newsletters for their machines. I've explained what the translation of unusual commands are between 8 and 16 bit machines and, hopefully, demonstrate just how similar the languages really are. I have tried to include ALL the commands which are slightly different between 8 and 16 bit machines but if I have missed one then please do let me know. Having all the routines available right across the board will be most useful for members. I am sure. However, please remember that Animation Routines are 16 bit specific, although previous Newsletters do contain routines for "simulated animation" for 8 bit machines. Remember also that the CALL command for PROCEDURE conditions is 8 bit specific. These PROC conditions are similar to GOSUB commands and routines in BASIC so 16 bit users will have to include the relevent conditions for these within their routines. The reference to "Free distribution of Stand Alone Games" means that you can sell, swap, give or whatever you wish to do with your completed games. The only stipulation is that you inlude an acknowledgement that the game was created using the 3D Construction Kit.....Mandy

ALL YOUR NEWS AND VIEWS ARE WELCOME FOR THE LETTERS SECTION

HINTS AND TIPS

SILENCE IS GOLDEN!

By J. C. Latty AMIGA

I'm afraid I have discovered that one of the Hard Drive tips I sent you for the last issue will not work with version V1.2 of the 3DCK. I had said with version 1 you could put ALL the program files into a drawer if you assign it first. For some reason, I haven't worked out yet, this will not work with version V1.2. So its back to the original instructions for now. One quick tip before I sign off! If, like me, you sometimes find it annoying to hear the built in sound every time you go through an entrance, you can kill the sound by using the number of an undefined sample. For example, if you are using the default sample.bnk, use the following lines:

```
IF COL?
THEN
GOTO (2)
SYNCSND (7)
ENDIF
```

MEMORABLE THINGS!

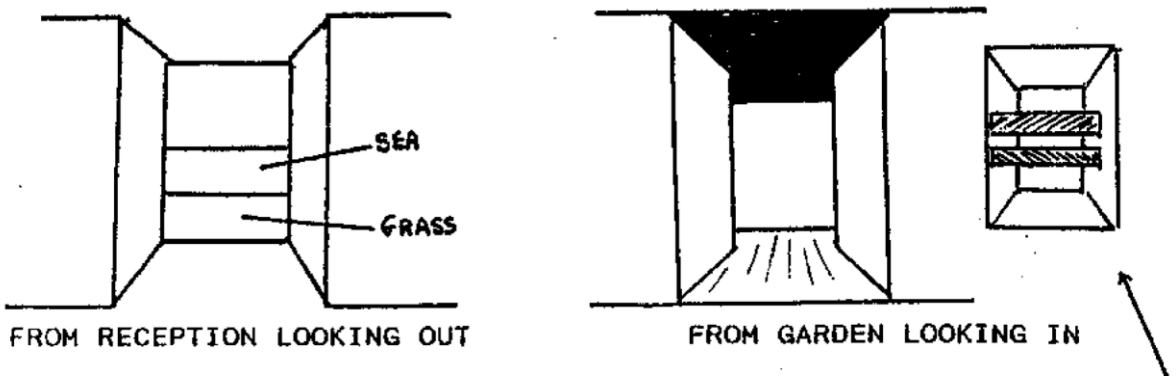
By Liam Johnston ATARI ST

Users of the Atari ST version of the 3DCK can get more memory to work with from the Kit by going to PREFERENCES and typing in 7000000. The machine will reset this to 5000000 and then give the user about 78K to work with. Far more than the default memory it boots up with. And players who have already started to program data can still avail themselves of this without having to re-program from scratch. Simply carry out the above instruction before you load in your data and you still have the extra memory to play with!

DOORS WITH A DIFFERENCE!

By R. Spreadborough ATARI ST

Here is an alternative method of creating doors and exits:



In fact these are wafer thin pyramids with rectangles placed over them but the visual effect is extremely realistic!

HINTS AND TIPS ARE NEEDED FOR THIS SECTION PLEASE

PROBLEM PAGES

I have an ICL DRS Model 40 PC and have a problem when I select MCGA graphics mode and serial mouse. Unfortunately, as soon as the mouse is moved, the pointer freezes and a white band appears across the screen. Strangely, this only happens in MCGA, the mouse and program combine perfectly in CGA and EGA modes. Do you have any idea as to why this should happen and how it can be solved?

Peter Griffiths, Northants

If at all possible, try another mouse driver or check the CONFIG FILE and AUTO EXEC.BAT and remove any non-standard programs or drivers. PC problems with memory or conflict always suggest these two ideas. Let me know how you get on!.....Mandy

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I have noticed that, even on FINE mode, walls are 2 units adrift when "joined" together. If you then walk into this joint and keep bashing your VR body passes through the gap and you eventually find yourself outside the game confines. Is there a solution to the 2 unit gap?

Paul Sayer, Ramsgate
16 BIT

2 Units is the smallest "move" available. To overcome this type in the actual co-ordinates into the ATTRIBUTES dialogue box.....Mandy

---

My first problem concerns the disc accessing. It sounds similar to Angela Bishop's problem in a previous issue. When I select the LOAD option, the old disc drive hums, accesses the master disc, and then gives the contents of that disc, no problem. When I now swap the disc for my save disc, I click on the A: icon, I type in the path A:\ in again, nothing happens, the program refuses to read the disc. I hear you say "why doesn't he put his save disc in, in the first place", good point, that's OK if you only want to access from one disc. I want to be able to use multiple discs to store various items etc onto. If I have to, I will use one disc, but another problem associated with this is that I cannot tell what is stored on any disc?

Paul Hough, Grimsby
ATARI ST

If you return your disc to the address on the back of the box, Paul, and ask for it to be replaced with version V1.2 they will do so with pleasure and I am sure you will experience no further difficulties with that version.....Mandy

---

I have tried to create more than 60 objects in an area and actually managed to do this, the only problem was that some of the objects were almost transparent. Is this due to the extra objects?

Paul Sayer, Ramsgate
16 BIT

Yes, Sorting will have problems with more than 60 objects.....Mandy

---

Is it possible to create messages on the walls of my 3D environment similar to CASTLE MASTER where you clicked on the yellow boards which brought up a screen with the message on?

Chris Troth, Bradford
16 BIT

It is possible to achieve the effect of messages, similar to CASTLE MASTER, by making an instrument the same size and position as the VIEW window. Make the instrument into a TEXT window. You can then write messages to this window. See the condition that controls the instructions in the Kitgame for an example on how this is done……..Mandy

---

Is there likely to be a "save" option available on a completed stand alone game when posted off to all friends etc. I think there's nothing worse than not having a "save" option when playing? Also, is there any limit to the number of objects that can be animated in one scene?

Paul Sayer, Ramsgate
16 BIT

There is a save command within the 16 bit versions of the Kit, Paul. You can define the keys or icons for both SAVE and LOAD in the same way you define for movement controls within your borders etc. There is no limit to the number of objects that can be animated in each scene.....Mandy

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If I expanded the memory of my ST, from half meg to full meg, would the 3D Kit run faster, and therefore, would I be able to have more objects in each area? What I am asking really is, does the 3D Construction Kit support memory upgrades?

Paul Hough, Grimsby
ATARI ST

If you have more memory available it won't make the Kit run faster but it will allow for larger areas.....Mandy

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I have noticed that LOCK/EXCLUDE doesn't work properly when inside the bungalow supplied with my version of the 3DCK. When I am inside the livingroom and select a part of the settee, for example, and try to exclude, this does not work. Using the move icons copies the selected part on the screen confusing it. Disabling the exclude icon restores the badly confused screen. Similar effects occur if I use the LOCK icon.

Jurgen Thurow
ATARI ST

The problem you experienced is because you were inside a room which has no horizon. Excluding objects in an area with no horizon will not appear to work because the background is not redrawn over the excluded objects.....Mandy

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I bought this software for my son's birthday but already we have experienced a problem. After defining all the controls and indicators for DRBORDER.IFF and saving using F2 we find that the bitmap has been lost, only the controls and indicators remain. I retraced the steps using KGBORDER by loading it in as usual. I pressed F2 and a SAVE SCREEN menu appeared with PATH and FILE as per the original load sequence. I pressed ENTER. I then attempted to load in the border and got the message THE REQUESTED FILE IS NOT OF THE CORRECT FORMAT. Now, both the borders are inaccessible. Shouldn't the manual give some kind of warning that this might happen?

Martin Sennett, Southampton
AMIGA

You have discovered something extremely unusual, Martin! One Amiga owner told us that using F2 would save a screen dump to your printer, but this is the first I have heard of a save option occuring by pressing F2. There is no warning in the manual because I had no idea that this would happen. The save and load options should be accessed by using the FILE menu under the top menu bar and from nowhere else. I am sending you a replacement disk as you lost both the borders and I will pass on the information to the programmers about what happened for their comments. I would be surprised if you had the same effect with the replacement disk as I get the feeling that there may have been a "one off" fault within your original program.....Mandy

Sharing your problems within the Newsletters may also help someone else! So do write in, a problem shared is a problem solved!

8-BIT ROUTINES

By George Dixon

SOME SENS(OR)IBLE ROUTINES

My aim this issue is to demonstrate the use of SENSORS and although the two routines that I include are written for use on 8-BIT machines I am sure that they can be easily adapted for use on 16-BITS.

Sensor Range

To accurately calculate the range of a sensor, first calculate the X, Y and Z distances from the maximum Viewpoint position that you require from the sensor. Add these distances together; this gives a value known as the MANHATTAN DISTANCE. This value divided by 64 gives the range in Object position units, i.e. 1 RANGE UNIT = 1 OBJECT POSITION UNIT.

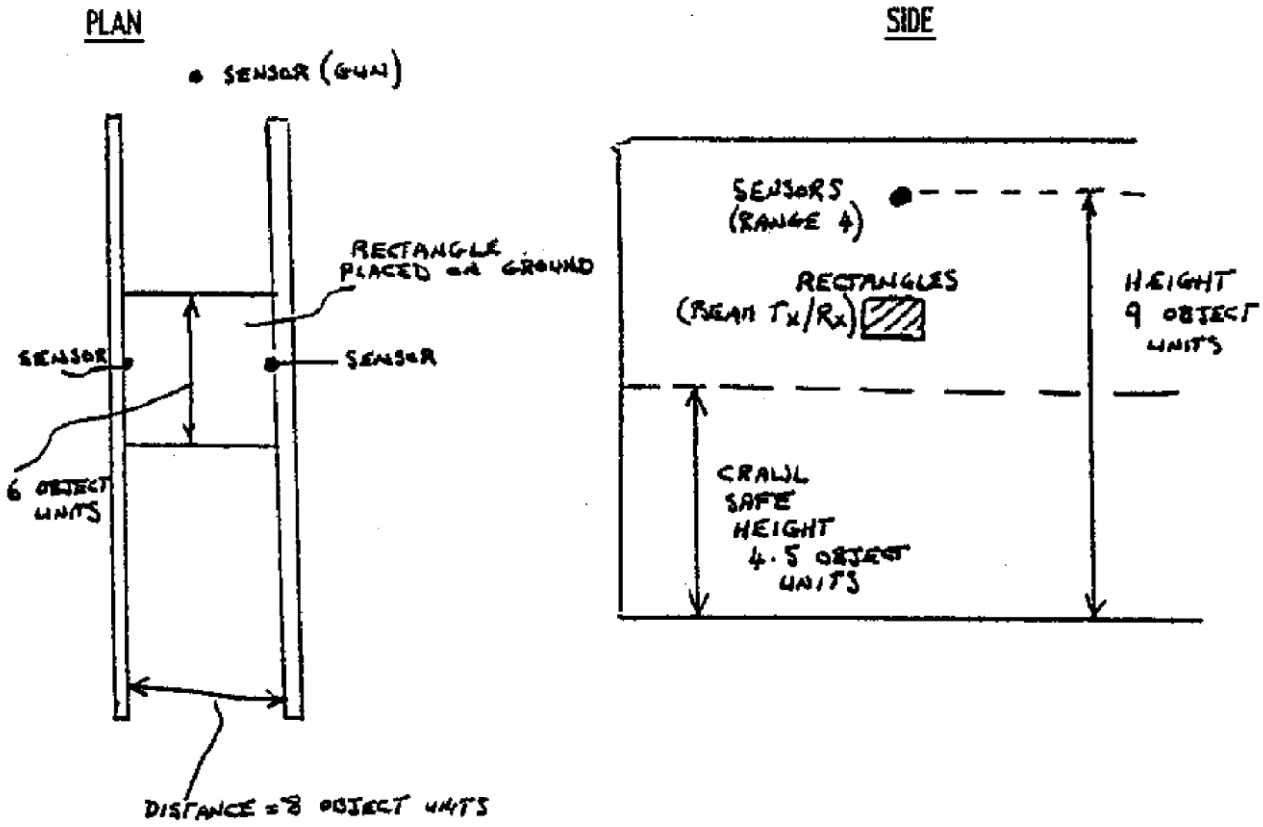
There now follow two routines that I hope you will find useful and informative:-

INVISIBLE (INFRA-RED) BEAM

The aim of this routine is to produce an "INFRARED BEAM", which is invisible, positioned across a corridor at waist height. The beam will be broken/interrupted by an explorer walking or running down the corridor, but can be crawled under to ensure his safety. If the beam is broken then a gun set at waist height will be activated to shoot at our intrepid explorer. Three hits to his abdomen and it is curtains for him! If, however, he drops into a crawl after breaking the beam he will be able to crawl forward/backward under the gun's "hail" of bullets; but, should he stand up before safety is reached then he will become a prime target again.

The head height (Y VIEWPOINT POSITION) when walking or running is 544 which equates to 8.5 (544÷64) object position units. When crawling the head height reduces to 288 viewpoint position units or 4.5 object position units.

The routine was originally devised as a demonstration of Sensor Range, but, could be developed for inclusion as a hazard in someone's game.



CREATE the following objects in AREA 1 and position them as per the two sketches above:-

```
OBJECT 2.........CUBE (left wall)
OBJECT 3.........CUBE (right wall)
OBJECT 4.........RECTANGLE (shade invisible for use as a trigger pad)
OBJECT 5.........RECTANGLE (shade red for use as beam transmitter)
OBJECT 6.........RECTANGLE (shade blue for use as beam receiver)
OBJECT 7.........SENSOR (set range to 4 and frequency to 0)
OBJECT 8.........SENSOR (set range to 4 and frequency to 0)
OBJECT 9.........SENSOR (set range to 100 and speed to 10)
```

CREATE and EDIT the following LOCAL CONDITIONS:-

1. IFSENSED 7
   AND
   IFHIT 4
   THEN
   ORV 2 1
   ELSE
   END
   ENDIF

THESE TWO CONDITIONS ARE BEAM BROKEN DETECTION ROUTINES

2. IFSENSED 8
   AND
   IFHIT 4
   THEN
   ORV 2 1
   ELSE
   END
   ENDIF

3. CMPV 70 121 (looking for key F to be pressed i.e. CRAWL select detection)
   IFEQ
   THEN
   ORV 1 1
   ELSE
   END
   ENDIF

4. CMPV 82 121 (looking for key R to be pressed i.e. WALK select detection)
   IFEQ
   THEN
   ANDV 2 1 (note the use of ANDV to ensure that BIT 1 is SET on walk selection
   ENDIF only if BEAM is broken previously)

5. CMPV 2 1
   IFEQ
   THEN
   VIS 9
   ELSE
   END
   ENDIF

6. CMPV 3 1
   IFEQ
   THEN
   INVIS 9
   ELSE
   END
   ENDIF
   IFTIMER
   THEN
   SOUND 3
   ENDIF

7. IFVIS 9
   AND
   IFTIMER
   THEN
   ADDV 1 2
   ELSE
   END
   ENDIF
   CMPV 3 2
   IFEQ
   THEN
   TEXTCOL 3
   PRINT 2 11 7
   DELAY 200
   ENDGAME
   ENDIF

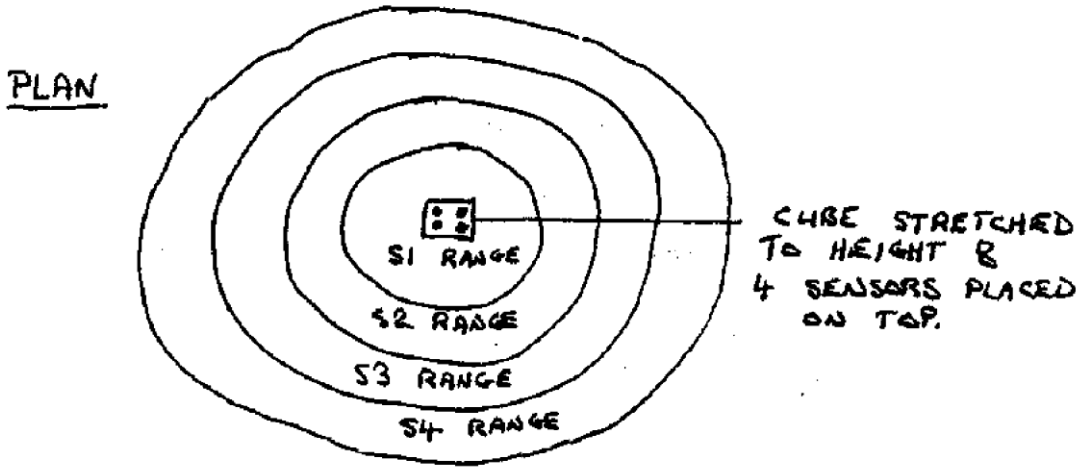
CREATE and EDIT the following GENERAL CONDITION:- 1. TIMER 50

CREATE and EDIT the following MESSAGE:- 2. YOU ARE DEAD

RANGE/PROXIMITY DETECTOR

The aim of this routine is to have an audible warning of coming within range of a particular point within an area with the frequency of the warning increasing as the player gets closer to the point. Uses for this routine could be a) as a warning device in an area b) audible proximity for docking of a space vehicle to space station airlock.

Study the following sketch which I hope shows the basic concept of my routine:-



CREATE the following OBJECTS and position as per the sketch:-

```
OBJECT 2.........CUBE (make X and Z size 1, make Y size 8)
OBJECT 3.........SENSOR S1 (set range to 5 and frequency to 0)
OBJECT 4.........SENSOR S2 (set range to 15 and frequency to 0)
OBJECT 5.........SENSOR S3 (set range to 25 and frequency to 0)
OBJECT 6.........SENSOR S4 (set range to 35 and frequency to 0)
```

This routine uses VARIABLE 1 as a range "cell" with a threshold of 200. When the sense count reaches 200 the alarm will sound and the count will reset to zero.

If the **TIMER** is set to 1 i.e. every 50th of a second then we can use the varying **SENSOR** ranges to good effect:-

SENSOR 1 will cause 1 to be added to variable 1 every 50th of a second i.e. count of 200 gives 4 seconds.

SENSOR 2 will cause 2 to be added to variable 1 every 50th of a second which will halve the time to reach count of 200 i.e. 2 seconds.

SENSOR 3 will cause 4 to be added to variable 1 every 50th of a second which will take 1 second to reach 200.

SENSOR 4 will cause 8 to be added to variable 1 every 50th of a second which will take half a second to reach 200.

I hope from the above that you can see that we will be varying the frequency of the sound as we get closer to the cube and come within the different sensor ranges.

CREATE and **EDIT** the following **LOCAL CONDITIONS:-**

```
1. IFSENSED 6
   AND
   IFTIMER
   THEN
   ADDV 1 1
   ELSE
   SETV 0 1
   END
   ENDIF
   IFSENSED 5
   AND
```

```
2. CMPV 200 1
   IFGT
   THEN
   SOUND 3
   SETV 0 1
   END
```

GENERAL CONDITION

```
TIMER 1
```

```
IFTIMER
THEN
ADDV 1 1
ELSE
END
ENDIF
IFSENSED 4
AND
IFTIMER
THEN
ADDV 2 1
ELSE
END
ENDIF
IFSENSED 3
AND
IFTIMER
THEN
ADDV 4 1
ELSE
END
```

VARIABLES - THE ART OF USING THEM

By Steven Flanagan CBM 64

The idea of altering variables 112 to 117 have already been covered in the last Newsletter, but this subject can still be developed further.

Demos could be designed, where the program plonks you in an environment with weird and wonderful scenery with graphical effects such as invisible parts, and revolves you around in a prepared route. This introduces a completely different side to the 3D Construction Kit.

You could do a guided tour of your environments, with text popping up telling you what's what. You could even do an art gallery, with various sculptures in the room.

Another way of using these variables is to have animated start and end sequences to a game. For example, the storyline of your game might be that you were on a plane that crash-landed on a deserted island or whatever. The sequence could show you in the plane, flying normally and then start to dive and crash-land.

You could even give the impression of the plane spinning out of control by changing variables 118 to 120.

Using similar methods, you could give the user a degree of control. For example, the start sequence may involve you gliding the plane towards a runway. Your Y position would decelerate at a constant speed and your speed would be constant. The user must steer left and right and control the rate of fall to land the plane on the runway rectangle.

This can easily be tested by a local routine such as:

```
CMPV    001    114    - Test if viewpoint Y low position is zero.
IFGT
THEN
END                   - If you are above ground then routine ends.
ENDIF
CMPV    001    115    - Test if viewpoint Y high position is zero.
IFGT
THEN
END                   - If above ground then routine ends.
ENDIF                 - Reaching this point means you must have touched
IFHIT   001             ground. This tests if you are on the runway.
THEN
GOTO    001    002    - If you are then goto area 2 to continue game -
```

```
END                     successful landing.
ELSE                  - Otherwise you missed the runway and crashed. PROC
CALL    001             1 should have the end sequence, ending with an
                        ENDGAME command.
```

This sort of thing may eat up memory, but it will be worth it in the end. It ties in with what was said last issue in the feature. "How to get your games noticed". If the first thing the player sees is a dazzling introduction sequence, he or she is bound to be interested.

If these sequences take up too much memory, you could omit the end sequence out of the game and save it as as a seperate game. When the player completes the game, he could be prompted to load the next file on the disk or tape. To stop people just loading in the end sequences without completing the game, you could have a password system.

This means that when the player completes the game, he will be given a password to type in at the beginning of the end sequence "game".

The start area in the end sequence should be completely black with no objects at all. In the password LOCAL routine below, the password is ST (2 letters).

Message 1 should be "ENTER PASSWORD".

```
PRINT       001     010     010     - Asks for password.
CMPV        083     121             - Tests if S key is pressed (ASCII (s) = 83)
IFEQ
THEN
ORV         001     001             - If processed, set a flag.
ENDIF
TESTV       001     001             - Test flag to see if S has been pressed.
IFEQ
THEN
ELSE
END                                 - If not then end.
ENDIF
CALL        001                     - PROC 1 is the routine to test for T.
TESTV       002     001             - If T flag is set then password is complete
IFEQ
THEN
GOTO        001     002             - If the password has been typed in, goto
                                      area 2 to begin the end sequence.
```

Now the routine for PROC 1:

```
CMPV        084     121             - Tests if T is pressed. (ASCII (t) = 84)
IFEQ
THEN
ORV         002     001             - If pressed, set flag.
```

As soon as both letters are pressed in order, you will be transported to area 2 where your end routine should start. This method leaves loads of memory for a spectacular ending to your game.

Here is a list of the ASCII numbers for all of the letters. This is the number to look for in variable 121:

A=65 B=66 C=67 D=68 E=69 F=70 G=71 H=72 I=73 J=74 K=75 L=76 M=77
N=78 O=79 P=80 Q=81 R=82 S=83 T=84 U=85 V=86 W=87 X=88 Y=89 Z=90

For example, if you want to see if Z is pressed, use:

```
CMPV    090    121
```

Thats all there is to it.

---

16 BIT ROUTINES

SWIMMING POOL ANIMATION

By Mieke Van Der Poll - PC

I created a swimming pool with a pyramid and a diving board with a cube. The animation starts when you shoot the diving board and stops when shooting the pool. The figure of the swimmer stands on the diving board at the start (group 4). When the animation starts it is moving towards the water, jumps in it and disappears. Another figure becomes visible (group 12) facing to the right, swims to the right and disappears. Group 17 becomes visible swimming forward, vanishes and group 32 (becoming visible) swims to the right. When group 32 vanishes it seems it is diving under and reappears again somewhere else on the screen (which is group 12 again) and continuing swimming! This animation will continue until you shoot the pool and stop it.

I made the first figure (group 4) consisting of an upper and a lower part. I made another group of the upper part (head, part of body, two arms) and saved it as an object. When I made group 4 invisible I loaded in the upper part on that spot, turned it to the right, made it invisible and movable and did the same with the other groups on the different spots in the pool.You have to place each upper part on the spot where the previous one disappears, turning it the right direction and making every part of it movable and invisible. Make sure, when you edit a group, everything is still static and only when it is in the right place, make every part of it movable and invisible. The only group that is not invisible at the start is group 4. All groups have to be made movable though!

SWIMMING ANIMATION ROUTINE

```
INCLUDE (4)
START
LOOP (17)
MOVE (0,0,17)
AGAIN
MOVE (0,-70,0)
SOUND (7)
AGAIN
INVIS (4)
VIS (12)
INCLUDE (12)
LOOP (10)
MOVE (10,0,0)
AGAIN
INVIS (12)
VIS (17)
INCLUDE (17)
LOOP (30)
MOVE (0,0,30)
AGAIN
INVIS (17)
VIS (22)
INCLUDE (22)
LOOP (35)
MOVE (-35,0,0)
AGAIN
INVIS (22)
VIS (27)
INCLUDE (27)
LOOP (30)
MOVE (0,0,-30)
AGAIN
INVIS (27)
VIS (32)
LOOP (35)
MOVE (35,0,0)
AGAIN
INVIS (32)
RESTART
```

RADIO CONTROLLED VEHICLE

You can achieve the same animation with the "vehicle" in Newsletter number 2, page 27, which is "radio-controlled". You have to make the conditions for the different arrows of the radio control unit. I have been trying this out for the four horizontal directions and will give you this routine also.

All four vehicles are first placed in the right position and made invisible and movable at the start. In each condition you have to make three vehicles invisible in order to choose any direction at random and the right vehicle becomes visible. The numbers of the groups depend on the amount of cubes, pyramids etc, you need to create your vehicle.

```
RADIO CONTROL UNIT:
Movement forwards:                IF ACTIVATED?
  Condition:                      OR SHOT?
                                  THEN VIS (2)
                                  INVIS (20)
                                  INVIS (38)
                                  INVIS (56)
                                  SETVAR (0,V40)
                                  SETVAR (75,V41)
                                  STARTANIM (1)
                                  ENDIF
VEHICLE (GROUP 2)
Animator 1:                       INCLUDE (2)
                                  START
                                  LOOP (2)
                                  MOVE (V40,0,V41)
                                  AGAIN
                                  STOPANIM (1)
                                  RESTART
RADIO CONTROL UNIT:
Movement to the right:            IF ACTIVATED?
  Condition:                      OR SHOT?
                                  THEN
                                  INVIS (2)
                                  INVIS (38)
                                  INVIS (56)
                                  VIS (20)
                                  SETVAR (75,V40)
                                  SETVAR (0,V41)
                                  STARTANIM (2)
                                  ENDIF

VEHICLE: (GROUP 20)
Animator 2:                       INCLUDE (20)
                                  START
                                  LOOP (2)
                                  MOVE (V40,0,V41)
                                  AGAIN
                                  STOPANIM (2)
                                  RESTART

RADIO CONTROL UNIT:
Movement backwards:               IF ACTIVATED?
  Condition:                      OR SHOT?
                                  THEN
                                  INVIS (2)
                                  INVIS (20)
                                  INVIS (56)
                                  VIS (38)
                                  SETVAR (0,V40)
                                  SETVAR (-75,V41)
                                  STARTANIM (3)
                                  ENDIF
```

```
VEHICLE: (GROUP 38):
Animator 3:                          INCLUDE (38)
                                     START
                                     LOOP (2)
                                     MOVE (V40,0,V41)
                                     AGAIN
                                     STOPANIM (3)
                                     RESTART

RADIO CONTROL UNIT:
Movement to the left:                IF ACTIVATED?
Condition:                           OR SHOT?
                                     THEN
                                     INVIS (2)
                                     INVIS (20)
                                     INVIS (38)
                                     VIS (56)
                                     SETVAR (-75,V40)
                                     SETVAR (0,V41)
                                     STARTANIM (4)
                                     ENDIF

VEHICLE: (GROUP 56):
Animator 4:                          INCLUDE (56)
Condition:                           START
                                     LOOP (2)
                                     MOVE (V40,0,V41)
                                     AGAIN
                                     STOPANIM (4)
                                     RESTART
```

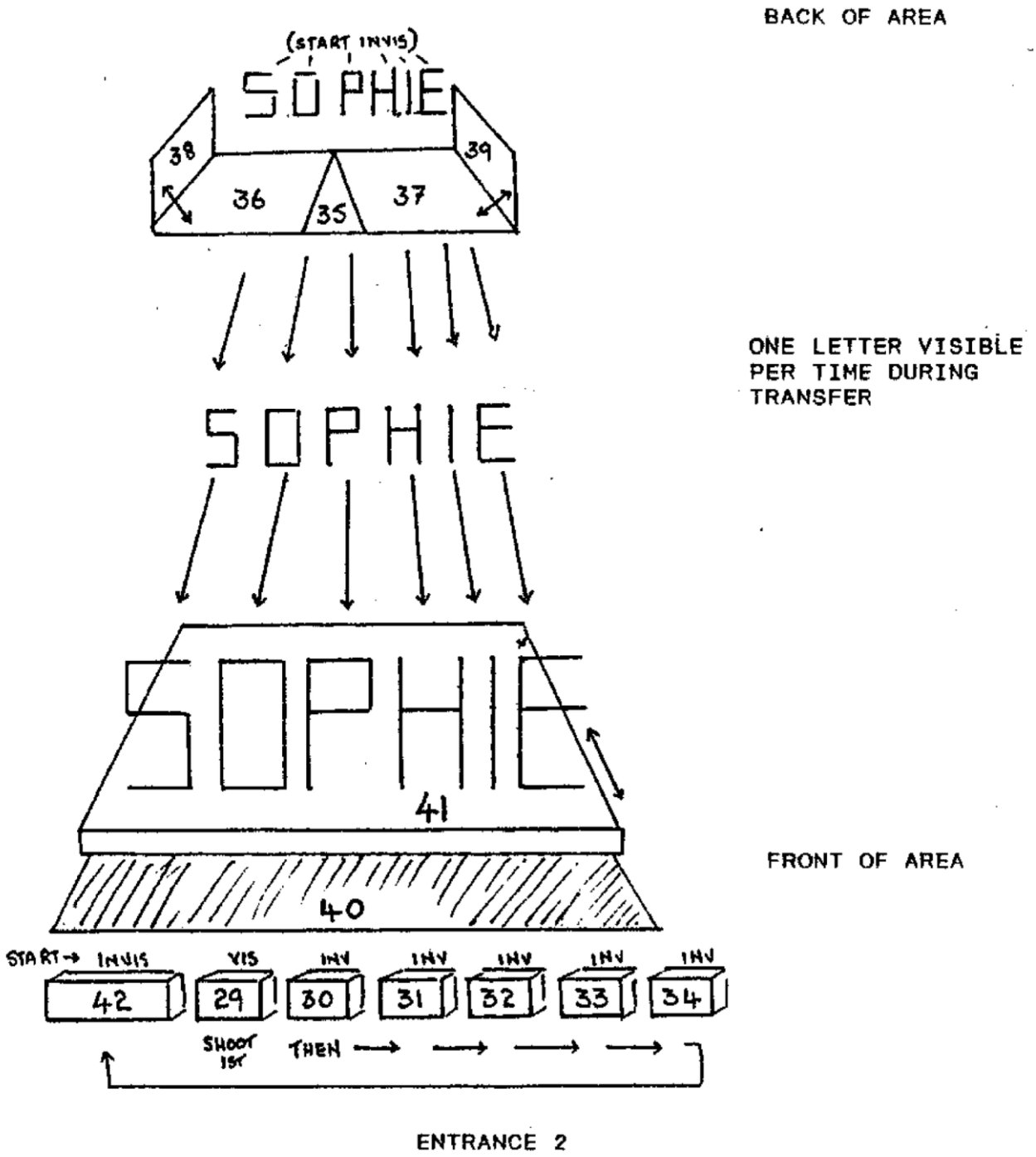
The only restriction is that you have to move in a kind of circle, because your vehicles are placed that way. I don't know yet how to solve that problem.

(Perhaps another member can come up with a solution to this problem and will write in and let us know his/her findings!.....Mandy)

VIDEO TITLE ANIMATION

By Chris Heslesby ATARI ST

Here is my (very) basic but WORKING! program to animate my 17 week old baby daughters name. This, when developed more will be used as the opening few seconds of the homemade video we have of her growing up. I hope that other users, who like me don't fully understand variables, will find it easy to follow and possibly use some of the conditions/animations etc for their own programs:



Shoot (29) - Letters S, then O, etc will move from back of the area to the front, then vanish. When all have moved across, shoot (42), this closes the trap (41) and the full name SOPHIE appears.

OBJECTS USED

No.	DESCRIPTION	INITIAL/CURRENT	ANIM.
1	FLOOR	.VIS	STAT
2	GROUP - for S		
3	cube	INVIS	MOVABLE
4	cube	INVIS	MOVABLE
5	cube	INVIS	MOVABLE
6	cube	INVIS	MOVABLE
7	cube	INVIS	MOVABLE
8	cube for O	INVIS	MOVABLE
9	cube "	INVIS	MOVABLE
10	cube "	INVIS	MOVABLE
11	cube "	INVIS	MOVABLE
12	cube for P	INVIS	MOVABLE
13	cube "	INVIS	MOVABLE
14	cube "	INVIS	MOVABLE
15	cube "	INVIS	MOVABLE
16	cube for H	INVIS	MOVABLE
17	cube "	INVIS	MOVABLE
18	cube "	INVIS	MOVABLE
19	cube for I	INVIS	MOVABLE
20	cube for E	INVIS	MOVABLE
21	cube "	INVIS	MOVABLE

No.	DESCRIPTION	INITIAL/CURRENT	
22	cube for E	INVIS	MOVABLE
23	cube "	INVIS	MOVABLE
24	GROUP - for O		
25	GROUP - for P		
26	GROUP - for H		
27	GROUP - for I		
28	GROUP - for E		
29	BLOCK - S	VISIB	STATIC
30	BLOCK - O	INVIS	STATIC
31	BLOCK - P	INVIS	STATIC
32	BLOCK - H	INVIS	STATIC
33	BLOCK - I	INVIS	STATIC
34	BLOCK - E	INVIS	STATIC
35	HOLE 1	VISIB	STATIC
36	TRAP down	VISIB	STATIC
37	TRAP down	VISIB	STATIC
38	TRAP up	INVIS	STATIC
39	TRAP up	INVIS	STATIC
40	HOLE 2	VISIB	STATIC
41	TRAP-SLIDE	VISIB	STATIC
42	BLOCK SOPHIE	INVIS	STATIC

ITEM CONDITIONS

```
(29) IF SHOT?
     THEN INVIS (36)
     INVIS (37)
     VIS (38)
     VIS (39)
     STARTANIM (7)
     INVIS (29)
     VIS (30)
     VIS (3)
     VIS (4)
     VIS (5)
     VIS (6)
     VIS (7)
     STARTANIM (1)
     ENDIF
(30) IF SHOT?
     THEN VIS (8)
     VIS (9)
     VIS (10)
     VIS (11)
     INVIS (30)
     VIS (31)
     STARTANIM (2)
     ENDIF
(31) IF SHOT?
     THEN VIS (12)
     VIS (13)
     VIS (14)
     VIS (15)
     INVIS (31)
     VIS (32)
     STARTANIM (3)
     ENDIF
(32) IF SHOT?
     THEN VIS (16)
     VIS (17)
     VIS (18)
     INVIS (32)
     VIS (33)
     STARTANIM (4)
     ENDIF

(33) IF SHOT?
     THEN VIS (19)
     INVIS (33)
     VIS (34)
     STARTANIM (5)
     ENDIF
(34) IF SHOT?
     THEN VIS (20)
     VIS (21)
     VIS (22)
     VIS (23)
     INVIS (34)
     STARTANIM (6)
     ENDIF

(42) IF SHOT?
     ADDVAR (1,V47)
     INVIS (42)
     STARTANIM (7)
     ENDIF
```

GENERAL CONDITIONS

```
001 INITIAL CONDITION
    GOTO (2,1)
    SETVAR (0,V40)
    SETVAR (0,V41)
    SETVAR (0,V42)
    SETVAR (0,V43)
    SETVAR (0,V44)
    SETVAR (0,V45)
    SETVAR (0,V46)
    SETVAR (0,V47)

002 IF VAR=? (V40,20)
    THEN INVIS (3)
    INVIS (4)
    INVIS (5)
    INVIS (6)
    INVIS (7)
    ENDIF

003 IF VAR=? (V41,20)
    THEN INVIS (8)
    INVIS (9)
    INVIS (10)
    INVIS (11)
    ENDIF

004 IF VAR=? (V42,20)
    THEN INVIS (12)
    INVIS (13)
    INVIS (14)
    INVIS (15)
    ENDIF

005 IF VAR=? (V43,20)
    THEN INVIS (16)
    INVIS (17)
    INVIS (18)
    ENDIF

006 IF VAR=? (V44,20)
    THEN INVIS (19)
    ENDIF

007 IF VAR=? (V45,20)
    THEN INVIS (20)
    INVIS (21)
    INVIS (22)
    INVIS (23)
    ENDIF

008 IF VAR=? (V46,8)
    THEN VIS (3)
    VIS (4)
    VIS (5)
    VIS (6)
    VIS (7)
    VIS (8)
    VIS (9)
    VIS (10)
    VIS (11)
    VIS (12)
    VIS (13)
    VIS (14)
    VIS (15)
    VIS (16)
    VIS (17)
    VIS (18)
    VIS (19)
    VIS (20)
    VIS (21)
    VIS (22)
    VIS (23)
    ENDIF

009 IF VAR=? (V47,1)
    THEN VIS (42)
    INVIS (38)
    INVIS (39)
    VIS (36)
    VIS (37)
    ENDIF
```

ANIMATIONS

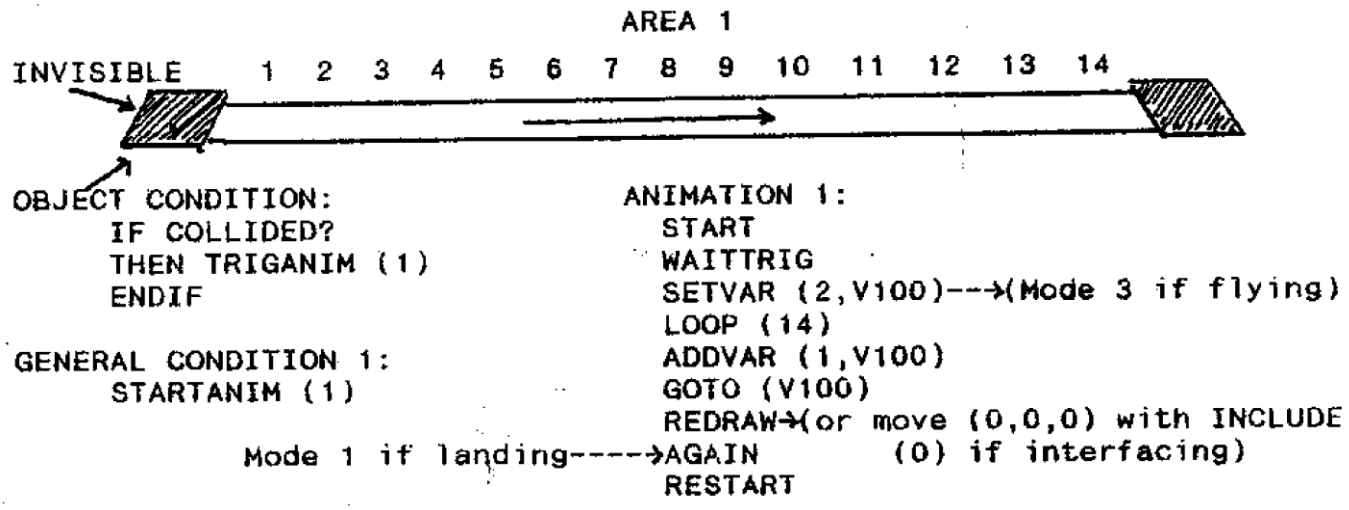
```
001 INCLUDE (2)
    START
    LOOP (20)
    MOVE (50,0,-170)
    ADDVAR (1,V40)
    AGAIN
    ADDVAR (1,V46)

002 INCLUDE (24)
    START
    LOOP (20)
    MOVE (50,0,-170)
    ADDVAR (1,V41)
    AGAIN
    ADDVAR (1,V46)
```

```
003   INCLUDE (25)
      START
      LOOP (20)
      MOVE (50,0,-170)
      ADDVAR (1,V42)
      AGAIN
      ADDVAR (1,V46)

004   INCLUDE (26)
      START
      LOOP (20)
      MOVE (50,0,0170)
      ADDVAR (1,V43)
      AGAIN
      ADDVAR (1,V46)

005   INCLUDE (27)
      START
      LOOP (20)
      MOVE (50,0,-170)
      ADDVAR (1,V44)
      AGAIN
      ADDVAR (1,V46)

006   INCLUDE (28)
      START
      LOOP (20)
      MOVE (50,0,-170)
      ADDVAR (1,V45)
      AGAIN
      ADDVAR (1,V46)
      ADDVAR (1,V47)

007   INCLUDE (41)
      START
      LOOP (10)
      MOVE (0,0,50)
      AGAIN
      ADDVAR (1,V46)
      STOPANIM (7)
      LOOP (10)
      MOVE (0,0,-50)
      AGAIN
      ADDVAR (1,V46)
      STOPANIM (7)
      RESTART
```

ANIMATING THE PLAYER

By R. Spreadborough ATARI ST

Here is a way of animating the players position within an area. It has a great number of advantages over the INCLUDE (o) method, and the SETVAR (X,Y,Z) method. It works rather like a film camera in your area that you can manover and click one shot after the other. If you wish to animate a journey on a conveyor belt you would use the following:



Now go and stand on the trigger pad and create an entrance from the menu. Take a few steps forward and create another. Repeat as many times as you wish making the animation smoother or faster, and just change the loop value. If REDRAW is used the player becomes locked into the animation and cannot use movement controls. However, if you use a MOVE command to move any object nowhere (MOVE (0,0,0)) then the controls are read each frame so it is possible to have some interaction during transit. If you wish to fly then board your craft and use Mode (3) to disable gravity. Make your craft invisible and create a take off sequence. It is possible, by selecting CAM 1-5 and Mode 2 or 3 to set yourself miles outside an area and fly in a circle around and land. Don't forget to set Mode 1 (walk) when you land!

HAPPY LANDINGS!

3D CONSTRUCTION KIT USERS GROUP